AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for searching multipaths of a mobile communication system, the method comprising:

performing ~~a coherent detection on reversed~~ a dispreading on I and Q channel signals of a Dedicated Physical Control Channel (DPCCH) transmitted from a remote mobile station to generate despread scrambling signals, multiplying the ~~signal~~ despread scrambling signals by a pilot pattern, ~~to accumulate a~~ performing a coherent accumulation on pilot information ~~section in a corresponding section~~, and performing a coherent accumulation on another information ~~section~~ to obtain coherently accumulated I and Q channel signals;

calculating energy values for ~~each~~ the coherently accumulated I and Q channel signals;

multiplying the calculated energy values ~~of the Q channel~~ corresponding to the pilot information by a variable weight and corresponding to the ~~pilot information section and the I channel by another variable weight corresponding to the~~ another information ~~section~~ by another variable weight, respectively;

noncoherently accumulating the energy values multiplied by variable weights, and ~~saving~~ storing the energy values;

comparing the ~~saved~~ stored energy values with a periodically designated threshold to generate a comparison result; and

searching timing information in a number of fingers in order of highest to lowest energy values according to ~~a~~ the comparison result.

2. (Currently Amended) The method of claim 1, wherein a total energy is searched by coherently accumulating the pilot information ~~section~~ of the DPCCH ~~to the pilot symbol~~, by coherently accumulating the another ~~control~~ information ~~section in an information unit~~ of the DPCCH, and by multiplying each accumulated information ~~section~~ by a different ~~weights from each other~~ weight.

3. (Currently Amended) The method of claim 1, wherein a number of the pilot information of the DPCCH is multiplied by a first weight corresponding to the pilot information ~~section in a variable section~~, and by a second weight corresponding to the another information ~~section~~.

4. (Previously Presented) The method of claim 2, wherein the number of the pilot information of the DPCCH is variable, being arbitrarily selected from 3 through 8.

5. (Currently Amended) The method of claim 2, wherein the weight corresponding to ~~a specific~~ the pilot information ~~section~~ is Pn/(Pn + 1) and the weight corresponding to the

another information ~~section~~ is 1/(Pn + 1), in which Pn is the number of the ~~specific~~ pilot information of the DPCCH.

6. (Currently Amended) The method of claim 2, wherein ~~the~~ a first weight to be multiplied by the pilot ~~section~~ information of the DPCCH, and ~~the~~ a second weight to be multiplied by the another information ~~section~~ of the DPCCH complement each other, and the sum of the two weights is 1.

7. (Currently Amended) The method of claim 1, wherein the method is repeated ~~based on a designated~~ as many times as a designated hypothesis of a window size for multiplying the number of the pilot information ~~of the DPCCH~~ and the another ~~control~~ information of the DPCCH by variable weights~~, noncoherent accumulation, and storage in a search result storage~~.

8. (Currently Amended) An apparatus for searching multipaths of a mobile communication system, comprising:

a decimator for performing a decimation process on each channel signal inputted in a predetermined sample rate;

an input buffer for ~~saving every output~~ storing outputs of the decimator;

a complex despreader for despreading the outputs ~~from~~ through the input buffer into complex signals using a scrambling code signal generated ~~by~~ based on a scramble control signal;

a coherent accumulator for ~~coherently accumulating a multiplication of the despread output and~~ multiplying the despread output by a pilot signal ~~based on~~ and coherently accumulating a pilot information ~~section~~ and the another ~~control~~ information ~~section~~;

an energy calculator for calculating an energy value of a Dedicated Physical Control Channel (DPCCH) using ~~a~~ the coherent accumulation signal from the coherent accumulator;

a multiplier for multiplying ~~a~~ the pilot ~~section~~ information ~~of the DPCCH~~ and the another ~~control~~ information ~~section~~ of the DPCCH by an appropriate weight, respectively;

a noncoherent accumulator for noncoherently accumulating an output of the multiplier;

a search result storage for sequentially storing an output of the noncoherent accumulator in a sequence relative to the energy value; and

a digital signal processor for outputting a control signal to generate the scrambling code, for outputting different weights according to ~~a pilot information of~~ the information of the DPCCH, and for periodically storing the energy value in the search result storage.

9. (Currently Amended) The apparatus of claim 8, wherein the coherent accumulator coherently accumulates the pilot information ~~section~~ of the DPCCH ~~to the pilot information~~, and coherently accumulates the another ~~control~~ information ~~section~~ except for the pilot information ~~in an information unit~~ of the DPCCH.

10. (Previously Presented) The apparatus of claim 8, wherein a number of the pilot information of the DPCCH is variable, being arbitrarily selected from 3 through 8.

11. (Currently Amended) The apparatus of claim 8, wherein the multiplier multiplies the pilot information ~~section in a variable section of the number of pilot information~~ of the DPCCH by a first weight transmitted from the digital signal processor, and the another information ~~section~~ by a second weight transmitted from the digital signal processor.

12. (Currently Amended) The apparatus of claim 8, wherein the weight corresponding to ~~a specific~~ the pilot information ~~section~~ is Pn/(Pn + 1), and the weight corresponding to the another information ~~section~~ is 1/(Pn + 1), in which Pn is the number of the ~~specific~~ pilot information of the DPCCH.

13. (Currently Amended) The apparatus of claim 8, wherein the multiplier multiplies the pilot ~~section~~ information of the DPCCH by a first weight, and the another information ~~section~~ by a second weight, the two weights being complements to each other and the sum of the two weights being 1.

14. (Currently Amended) A method for searching multipaths of a mobile communication system, the method comprising:

decimating I and Q channel signals of a Dedicated Physical Channel (DPCH) transmitted from a remote mobile station to generate decimated I and decimated Q channel signals, storing the decimated I and Q channel signals in an input buffer, respectively, and despreading the decimated I and decimated Q channel signals using a scrambling code signal;

calculating an energy value of a Dedicated Physical ~~Data~~ Control Channel ~~(DPDCH)~~ (DPCCH) by multiplying the despread channel signals by a pilot pattern to generate multiplication outputs, coherently accumulating the multiplication outputs, calculating an energy value of the Dedicated Physical Data Control Channel ~~(DPCCH)~~(DPDCH), dechannelizing the despread channel ~~signal using~~ signals to an orthogonal variable spreading factor (OVSF), and coherently accumulating the dechannelized ~~code~~ channel signals;

noncoherently accumulating the energy values of the DPCCH and the DPDCH, and multiplying each channel energy value by different channel weights according to a spreading factor of the DPDCH;

adding the channel energy values multiplied by different channel weights together, sequentially storing the sum, and periodically comparing the stored channel energy values with a designated threshold; and

sending out a channel energy value greater than the threshold to a sort block, and searching timing information in order of high to low energy values, the number of channel energy values being equal to a number of fingers.

15. (Currently Amended) The method of claim 14, wherein the channel ~~weight~~ weights comprises a first channel weight corresponding to a spreading factor of the ~~DPCH of and the DPCCH that is noncoherently accumulated,~~ DPCCH and a second channel weight corresponding to a spreading factor of the DPDCH ~~of the DPCH that is noncoherently accumulated~~.

16. (Previously Presented) The method of claim 15, wherein if the spreading factor (SF_k) of the DPDCH varies from 4 through 256, and the spreading factor (SF_k) = $256(2^k)$,where k ranges from 0 to 6, then the first channel weight (Wc) corresponding to the spreading factor (SF_k) of the DPDCH is $1/((256/SF_k) + 1)$, and the second channel weight (Wd) is $(256/SF_k)/((256/SF_k)+1)$.

17. (Currently Amended) The method of claim 15, wherein the first weight to be multiplied by ~~the spreading factor of the DPDCH~~ the energy value of the DPCCH, and the second weight to be multiplied by the energy of the DPDCH complement each other, and the sum of the two weights is 1.

18. (Currently Amended) An apparatus for searching multipaths of a mobile communication system, comprising:

a decimator for receiving a Dedicated Physical Channel (DPCH) signal from a remote mobile station, for filtering off the signal, and decimating I and Q channel signals at a designated ratio, the signals being inputted at a predetermined sample rate;

an input buffer for storing an output of the decimator;

a complex despreader for despreading the channel signal ~~saved~~ stored in the input buffer using a scrambling code signal ~~under the direction of a scrambling code signal~~ generated ~~by a~~ based on the scrambling code control signal to generate a despread output;

a first channel energy searcher for searching a first channel Dedicated Physical Control Channel (DPCCH) energy by multiplying the despread output by a pilot signal and coherently accumulating the multiplication output to calculate an energy and by noncoherently accumulating the calculated energy;

a second channel energy searcher for searching a second channel Dedicated Physical Control Channel (DPCCH) energy by dechannelizing output of the complex despreader using an orthogonal variable spreading factor (OVSF), by coherently accumulating the dechannelized output to calculate ~~the~~ an energy, and by noncoherently accumulating the calculated energy;

a first multiplier for multiplying the output of the noncoherent accumulation of the first channel energy searcher by a first channel weight;

a second multiplier for multiplying the noncoherently ~~accumulated first channel energy~~ accumulation of the second channel energy searcher by a second channel weight;

an adder for adding up ~~the~~ an output of the first multiplier and ~~the~~ an output of the second multiplier;

a search result storage for storing ~~a total~~ an output value of the adder; and

a digital signal processor (DSP) for outputting different channel weights according to a spreading factor of the DPDCH, for ~~periodically~~ storing the search energy values saved in the search result storage to a memory of the DSP, for comparing the stored search value with a threshold, and if the search energy value is greater than the threshold, searching for timing information in order of high to low energy values~~, the number of energy values being equal to~~ in a number of fingers.

19. (Currently Amended) The apparatus of claim 18, wherein the first channel energy searcher comprises:

[[a]] first and [[a]] second coherent ~~accumulator~~accumulators;

a first energy calculator for calculating an energy value of the DPCCH based on a coherently accumulated signal by the first and the second coherent accumulators; and

a first noncoherent accumulator for noncoherently accumulating an output of the first energy calculator.

20. (Currently Amended) The apparatus of claim [[18]] 19, wherein the second channel energy searcher comprises:

third and fourth multipliers for dechannelizing the despread ~~signals~~ outputs generated by the complex despreader by multiplying the ~~signal~~ despread output by the orthogonal variable spreading factor (OVSF) ~~code~~ to distinguish the channel;

~~first and second~~ third and fourth coherent accumulators for coherently accumulating ~~output~~ outputs of the third and the fourth multipliers, respectively;

a ~~first~~ second energy calculator for calculating an energy value of ~~the~~ a DPDCH out of the coherent accumulation signal generated by the first and second coherent accumulators; and

a ~~first~~ fourth noncoherent accumulator for noncoherently accumulating an output of the ~~first~~ second energy calculator.

21. (Currently Amended) The apparatus of claim 18, wherein the digital signal processor ~~has~~ generates a first channel weight and a second channel weight according to the spreading factor of the DPDCH, the two weights being complements to each other and the sum of the two being 1, and the digital signal processor outputs the weights to the first multiplier and the second multiplier, respectively.

22. (Previously Presented) The apparatus of claim 21, wherein if the spreading factor (SF_k) of the digital signal processor varies from 4 through 256, and the spreading factor (SF_k) =

$256(2^k)$, where k ranges from 0 to 6, then the digital signal processor outputs the first channel weight (Wc) corresponding to the spreading factor (SF_k) of the DPDCH as $(256/SF_k)/((256/SF_k)+1)$, and the digital signal processor outputs the second channel weight (Wd) as $1/((256/SF_k) + 1)$.

23. (Currently Amended) A method for searching multipaths of a mobile communication station, comprising:

a1) searching multipaths of a remote mobile station by providing different weights to a pilot information section and another ~~control~~ information section of a Dedicated Physical Control Channel (DPCCH), respectively, when a spreading factor of a ~~reverse~~ Dedicated Physical Data Channel (DPDCH) transmitted from a remote mobile station is not known; and

b1) searching multipaths of the mobile station by multiplying an energy value of the DPCCH and an energy value of the DPDCH by different weights that correspond to a spread factor of the DPDCH, respectively, thereby obtaining a total energy when the spreading factor of the reverse DPDCH transmitted from the remote mobile station is known.